UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA

VASCULAR SOLUTIONS LLC; TELEFLEX LLC; TELEFLEX LIFE SCIENCES LIMITED; and ARROW INTERNATIONAL LLC,

Plaintiffs,

v.

MEDTRONIC, INC. and MEDTRONIC VASCULAR, INC.,

Defendants.

Case No. 19-CV-1760 (PJS/TNL)

ORDER

J. Derek Vandenburgh, Tara C. Norgard, Joseph W. Winkels, Shelleaha L. Jonas, Seung Sub Kim, CARLSON, CASPERS, VANDENBURGH & LINDQUIST, P.A.; Sanjiv P. Laud, MCCURDY LLC; Kenneth E. Levitt, DORSEY & WHITNEY LLP, for plaintiffs.

Kurt J. Niederluecke, Lora M. Friedemann, Laura L. Myers, Barbara Marchevsky, Cara S. Donels, FREDRIKSON & BYRON, P.A., for defendants.

Plaintiffs Vascular Solutions LLC, Teleflex LLC, Teleflex Life Sciences Limited, and Arrow International LLC (collectively "Teleflex") bring this patent-infringement action against defendants Medtronic, Inc. and Medtronic Vascular, Inc. (collectively "Medtronic"). Teleflex claims that Medtronic's Telescope catheter infringes claims in a family of patents that are directed to guide-extension catheters used in interventional-

cardiology procedures.[1] Medtronic counterclaims for declarations of non-infringement and invalidity.

This matter is before the Court for construction of certain terms in accordance with *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996). For purposes of this phase of the case, *see* ECF Nos. 399, 406, Teleflex asserts claims 9, 13, 17, and 18 of U.S. Patent No. 8,408,032 ("'032 patent"); claim 27 of U.S. Patent No. RE45,380 ("'380 patent"); claims 25 and 52 of U.S. Patent No. RE45'776 ("'776 patent"); claim 4 of U.S. Patent No. 8,142,413 ("'413 patent"); claim 33 of U.S. Patent No. RE47,379 ("'379 patent"); and claim 46 of U.S. Patent No. RE46,116 ("'116 patent"). ECF No. 433 at 1.

I. STANDARD OF REVIEW

Claim construction is an issue of law for the court. *Markman*, 517 U.S. at 391. Disputed terms in a claim must be construed in the context of both that individual claim and "the entire patent, including the specification." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). The specification, read in light of the prosecution history, is the primary basis for construing patent claims. *Id.* at 1315. Courts may also rely on "extrinsic evidence"—anything other than the patent and its prosecution history—but that evidence is less important than the intrinsic record. *Id.* at 1317.

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[1]The technology is described in a *Markman* order entered in another case involving the same family of patents. *See QXMédical, LLC v. Vascular Sols., LLC*, No. 17-CV-1969 (PJS/TNL), 2018 WL 5617568 (D. Minn. Oct. 30, 2018).

In general, claim language means whatever it would have meant, ordinarily and customarily, to a person of ordinary skill in the relevant art at the time the patent application was filed. *Id.* at 1312–13. In some cases, the ordinary and customary meaning of claim language to a person of ordinary skill in the art may be identical to the meaning of that language to a lay person who is not skilled in the art. *See id.* at 1314 (acknowledging that claim construction sometimes "involves little more than the application of the widely accepted meaning of commonly understood words"). Here, the parties agree that a person of ordinary skill in the relevant art would be one of the following: (1) a medical doctor who had completed a coronary intervention training program and had experience working as an interventional cardiologist; or (2) a person with an undergraduate degree in engineering, such as mechanical or biomedical engineering, with three years' experience designing medical devices, including catheters or catheter-deployable devices.[2] Keith Decl. ¶ 9 [ECF No. 445]; Zalesky Decl. ¶ 37 [ECF No. 452].

[2]The parties also agree that "[e]xtensive experience and technical training might substitute for education, and advanced degrees might substitute for experience." Keith Decl. ¶ 9 [ECF No. 445]; Zalesky Decl. ¶ 37 [ECF No. 452].

II. CLAIM CONSTRUCTION

A. Substantially Rigid Portion/Segment

The parties dispute the proper constructions of "portion," "segment," and "substantially rigid portion/segment." The parties have struggled to come up with viable constructions, and the Court has done no better on its own. The Court has therefore appointed an expert to assist with construction of "substantially rigid portion/segment." ECF No. 469. The Court will defer construing these terms until after it receives the expert's report and the parties' responses to that report. Where "portion" or "segment" is part of another term that is construed below, the Court's construction should not be understood to adopt a particular meaning of "portion" or "segment." Finally, as there is no dispute that the patents use "portion" and "segment" interchangeably, any mention of one term in this order is meant to include the other.

B. Reinforced Portion/Segment

Various claims of the patents-in-suit claim a "reinforced portion" or a "reinforced segment." The parties' dispute centers on the manner of reinforcement. Specifically, Medtronic contends that the referenced portion must be reinforced in a particular way: viz., with a braid or coil. To support its construction, Medtronic points to language in the specification describing an embodiment as having a braid or coil reinforcement. *See, e.g.*, '032 patent, col. 6, ll. 24–26 ("Reinforced portion 18 includes braid or coil

reinforcement 32."); *see also id.* col. 3, ll. 40–42 ("In one embodiment, the reinforced portion may be reinforced, preferably with metallic fibers in a braided or coiled pattern.").

The Federal Circuit has "repeatedly warned," however, "against confining the claims" to an embodiment described in the specification, even if the specification describes only a single embodiment. *Phillips*, 415 F.3d at 1323. And as Teleflex points out, certain claims *expressly* require that the reinforced portion be reinforced with a braided or coiled material. *See, e.g.*, '032 patent, cl. 7 ("The device of claim 6 wherein the flexible cylindrical reinforced portion is reinforced with metallic elements in a braided or coiled pattern."); *see also id.* cl. 16; '380 patent, cls. 17, 31; '379, cl. 31; '413 patent, cl. 12. This limitation would be superfluous if "reinforced" already meant "reinforced with braid or coil reinforcement." *Cf. Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1326 (Fed. Cir. 2003) ("Our court has made clear that when a patent claim does not contain a certain limitation and another claim does, that limitation cannot be read into the former claim in determining either validity or infringement." (citation and quotation marks omitted)).

The Court therefore rejects Medtronic's proposed construction of "reinforced" and agrees with Teleflex that no additional construction of that term is required.

C. Flexible Tip Portion/Segment

The parties next dispute the proper construction of "flexible tip portion/segment." As with "reinforced portion," Teleflex contends that no construction is necessary (beyond its preferred construction of "portion"). Medtronic proposes that the term be defined as the "flexible distal end portion/segment of the cylindrical structure without braid or coil reinforcement."

Medtronic relies on the specification to argue that the flexible tip portion is always distinct from the reinforced portion and therefore must be defined to have no reinforcement whatsoever. But that interpretation is inconsistent with claims' language, which makes clear that the flexible tip portion can include a reinforced portion. In particular, claim 1 of the '032 patent claims "[a] device for use with a standard guide catheter . . . the device comprising: a flexible tip portion defining a tubular structure." '032 patent, col. 10, ll. 21, 28–29. Dependent claim 6 claims the device of claim 1 "wherein the tubular structure"—that is, the tubular structure that is defined by the flexible tip portion—"includes a flexible cylindrical distal tip portion *and a flexible cylindrical reinforced portion proximal to the flexible distal tip portion*." *Id.* col. 11, ll. 10–13 (emphasis added).

Medtronic argues that claim 1 does not require that the "flexible tip portion" and the "tubular structure" be one and the same, but only that the "flexible tip portion" be

in the shape of a tube. *See* Zalesky Decl. ¶ 93 [ECF No. 452]. This argument ignores the grammatical structure of claim 6, which specifically refers to "*the* tubular structure" that is defined by the "flexible tip portion" of claim 1. The Court therefore rejects Medtronic's argument that the flexible tip portion cannot include a reinforced portion and agrees with Teleflex that no construction is necessary.

D. Rigidity Comparisons

The catheter described in claim 52 of the '776 patent includes (among other things) "a tubular structure" and a "segment defining [a] partially cylindrical opening having an angled proximal end, formed from a material having a greater flexural modulus than a flexural modulus of the tubular structure." '776 patent, col. 15, ll. 18, 23–26. Similarly, claim 46 of the '116 patent requires "advancing the balloon catheter or stent through an opening formed by a material or material combination more rigid than the distal end portion of the tubular structure." '116 patent, col. 16, ll. 28–31. The Court will refer to these, respectively, as the "flexural modulus" claim and the "rigid" claim.

Medtronic argues that these claims are indefinite because they require comparing a "material" (or "material combination") to a "structure." According to Medtronic, it is not possible to compare the flexural modulus or rigidity of "a material" (or "material combination") to a "structure." *See* Zalesky Decl. ¶ 78 [ECF No. 452] (asserting that a

person of ordinary skill in the art "cannot compare the properties of a material without form to a structure that has form").

"[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). "The definiteness requirement, so understood, mandates clarity, while recognizing that absolute precision is unattainable." *Id.* at 910. Patents are presumed valid, 35 U.S.C. § 282(a), and accordingly Medtronic bears the burden of proving indefiniteness by clear and convincing evidence, *BASF Corp. v. Johnson Matthey Inc.*, 875 F.3d 1360, 1365 (Fed. Cir. 2017).

Medtronic is clearly correct that both phrases call for a comparison between a "material" (on the one hand) and a "structure" (on the other hand). Teleflex contends otherwise, arguing that other claim language identifies the structure that the "material" forms. *See* ECF No. 454 at 22.[3] While that is true, it is grammatically and semantically irrelevant. Both claims (1) describe a structure and then (2) specify that that structure is formed from (or by) a *material* and then (3) specify that that material has a rigidity (or flexural modulus) that is comparatively "greater" or "more" than the rigidity (or

[3]When citing documents by ECF number, the Court cites to the page numbers generated by the Court's docketing system.

flexural modulus) of a separate structure. Teleflex's argument to the contrary would read "formed from/by a material" out of the claims. As a matter of plain language, then, Teleflex is incorrect that the claims require a structure-to-structure comparison.

And that raises an additional problem: While Teleflex's semantic arguments seem to imply that the claims should be construed to require a structure-to-structure comparison, Teleflex's proposed constructions do not actually call for such a comparison. Indeed, there is something of a confusing mismatch between Teleflex's arguments, its proposed constructions, and the evidence of its expert.

For example, Teleflex's proposed construction of the flexural modulus claim simply reiterates the same material-to-structure comparison. *See* ECF No. 441 at 37 (proposing "[f]ormed from matter having a greater flexural modulus than a flexural modulus of the tubular structure").[4] Confusingly, however, Teleflex's expert asserted, in his initial declaration, that both claims require a structure-to-structure comparison (without acknowledging that, read literally, the claims require a material-to-structure comparison). *See* Keith Decl. ¶ 30 [ECF No. 445] ("These terms compare the rigidity of the side opening segment to the rigidity of a further distal portion or segment.").

[4]As Teleflex points out, this is the construction that the Court adopted in the *QXMédical* case. *See QXMédical, LLC*, 2018 WL 5617568, at *10–12. In that case, however, the parties were disputing the meaning of "a material." *Id.* at *10. Specifically, the parties disputed whether "a material" can include a combination of several materials. *Id.* The parties did not raise, and the Court therefore did not consider, the problem of comparing a material to a structure.

At oral argument, Teleflex switched gears and contended that the flexural modulus claim calls for a material-to-material comparison, ECF No. 463 at 143–45, because, according to Teleflex's expert, flexural modulus is a material property that is independent of shape and that can be determined by testing a structure, *see* Keith Decl. ¶ 1 [ECF No. 456]; *see also* ECF No. 463 at 137–38 (Teleflex asserting that a thin sheet of gold and a thick bar of gold have the same flexural modulus). If that is true, it would seem to solve the problem, as it would seemingly permit a material-to-structure comparison (and suggest that such a comparison is functionally equivalent to both a material-to-material comparison and a structure-to-structure comparison).

There is a factual dispute concerning whether flexural modulus can be determined independent of structure, however. *See* Zalesky Decl. ¶¶ 10–11 [ECF No. 458]. Morever, Teleflex's expert did not himself conduct a material-to-structure comparison, and when asked whether he could compare the rigidity of a material without form to the rigidity of a material with form, he testified that he was "not aware of a particular test that does that." Myers Decl. [ECF No. 453] Ex. 12 at 66, 69. (While the question asked about "rigidity," the expert later used "rigidity" as a synonym for flexural modulus in his initial declaration, Keith Decl. ¶ 30 [ECF No. 445], which suggests that his testimony may also have been intended to refer to flexural modulus.)

As for the rigid claim, Teleflex initially proposed a material-to-material comparison. *See* ECF No. 441 at 37 (proposing "[a]n opening formed by matter that is more rigid than the matter forming the distal end portion of the tubular structure"). Again, though, Teleflex's expert opined that this term requires a structure-to-strucure comparison. Keith Decl. ¶ 30 [ECF No. 445]. At oral argument, Teleflex once again switched gears from its proposed construction, arguing that rigidity *cannot* be determined independent of structure and that, for this reason, the rigid claim calls for a structure-to-structure comparison. ECF No. 463 at 143–44.

At this point, given the state of the record and the confounding nature of Teleflex's arguments, the Court believes that the best course of action is to defer the issue of indefiniteness until the summary-judgment stage, as there may be factual disputes that bear on whether these terms are indefinite. While indefiniteness is a matter of law, *Nature Simulation Systems Inc. v. Autodesk, Inc.*, 50 F.4th 1358, 1360 (Fed. Cir. 2022), a jury may be required to resolve factual disputes before a court can reach that legal conclusion, *see Bombardier Recreational Products Inc. v. Arctic Cat Inc.*, 785 F. App'x 858, 867 (Fed. Cir. 2019) ("The evidence presented on these topics was almost exclusively extrinsic, in large part encompassing warring expert testimony. The question of definiteness thus required the resolution of critical factual issues and was properly before the jury.").

E. The Second Artery

Claim 1 of the '413 patent claims "[a] method of providing backup support for an interventional cardiology device for use in the coronary vasculature." '413 patent, col. 10, ll. 28–29. The claim describes "inserting the standard guide catheter into a first artery" and "positioning the distal end of the standard guide catheter in a branch artery that branches off from the first artery." *Id.* col. 10, ll. 39–43. The claim goes on to describe inserting a coaxial guide catheter into the standard guide catheter and "advancing a distal portion [of the coaxial guide catheter]. . . beyond the distal end of the standard guide catheter and into the second artery such that the distal portion extends into the second artery." *Id.* col. 10, ll. 62–65.

Medtronic argues that the reference to "the second artery" renders this claim indefinite because it lacks an antecedent. The Court agrees with Teleflex, however, that the antecedent is obviously the "branch artery" referred to earlier in the claim. The claim refers to two arteries—"a first artery" and "a branch artery." *Id.* col. 10, ll. 39, 43. The distal tip of the standard guide catheter is extended from the first artery into the branch artery. *Id.* col. 10, ll. 42–43. When the claim describes the distal tip of the coaxial guide catheter extending beyond the distal tip of the standard guide catheter "into the second artery," therefore, *id*. col 10, ll. 63–65, it is clearly referring to the branch artery in which the distal tip of the standard guide catheter is already seated. Medtronic's

contention that "the second artery" could refer to some unspecified third artery falls far short of the clear and convincing evidence necessary to render a claim invalid as indefinite. *BASF Corp.*, 875 F.3d at 1365; *see also Energizer Holdings, Inc. v. Int'l Trade Comm'n*, 435 F.3d 1366, 1370 (Fed. Cir. 2006) ("the failure to provide explicit antecedent basis for terms does not always render a claim indefinite" (citation and quotation marks omitted)).

F. Side Opening/Partially Cylindrical Opening

Medtronic proposes that the terms "side opening" and "partially cylindrical opening" be construed to mean "opening in the side of a cylindrical structure" or, alternatively, "opening in the side of a cylindrical structure that includes a first full circumference portion, hemicylindrical portion, arcuate portion, and second full circumference portion." ECF No. 451 at 33, 35. For the reasons stated on the record at the *Markman* hearing, the Court agrees with Teleflex that no construction is necessary. *See* ECF No. 463 at 153–56. If any confusion should arise at trial, the parties may request an appropriate instruction at that time.

G. Coaxial Lumen/Coaxial Guide Catheter

Medtronic proposes to construe "coaxial lumen" as "lumen sharing the same axis as the standard guide catheter lumen." Similarly, Medtronic proposes to construe "coaxial guide catheter" as "guide extension catheter sharing the same axis as the

standard guide catheter." ECF No. 451 at 35. Teleflex argues that no construction is needed.

Teleflex does not dispute that, as a general matter, "coaxial" means sharing the same axis. ECF No. 463 at 158. But Teleflex is concerned that Medtronic's proposed construction would allow Medtronic to argue that a microscopic variation between the axes means that there is no infringement. Medtronic agrees, however, that "coaxial" does not require mathematical precision. *Id.* at 161.

As there is no dispute that "coaxial" means "sharing the same axis," the Court will adopt Medtronic's proposed constructions. If the parties later develop a concrete dispute over whether this limitation is met in the accused device, the Court will address the dispute at that time.

ORDER

Based on the foregoing, and on all of the files, records, and proceedings herein, the Court construes the disputed claim language as stated above.

Dated: December 27, 2022

Patrick J. Schiltz, Chief Judge
United States District Court